

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-11T10:13:10.750
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 52026111383950336
 2Mass ID (if available) : 04074151+2046385

Uranus 2026-11-11T10:13:10 K12.97 G16.79 PgtRgt

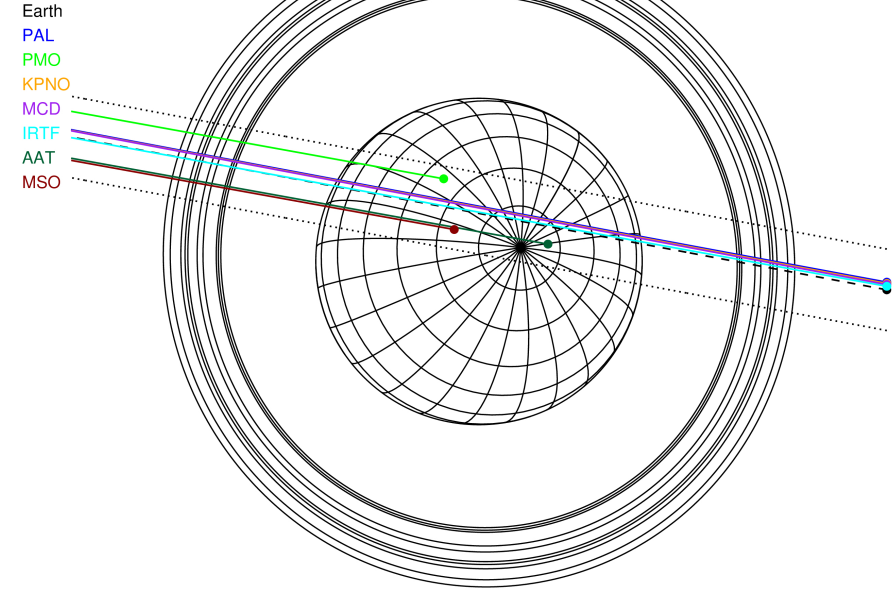
ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s

RUWE (>1.4 is poor) : 1.81
 K magnitude : 12.971
 G magnitude : 16.787
 RP magnitude : 15.541
 BP magnitude : 18.162
 DUPflag : 0
 Distance (au) : 18.477
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.77
 Sun-Moon sep (deg) : 170.02
 B (ring opening deg) : 74.34
 PA of pole (deg) : -71.57

#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

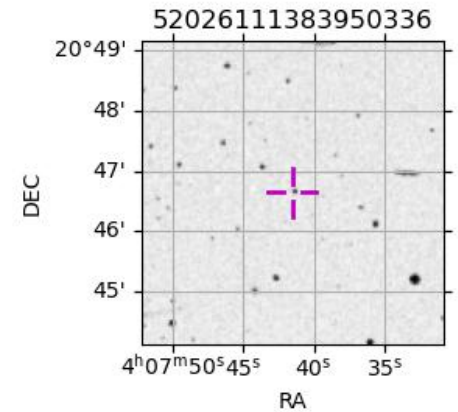


2026-11-11T10:13:10.7500 ra: 04 07 41.5236 s: +20 46 38.525 C/A 0.556° PA 169.39 deg v_sky -22.42 km/s D 18.48 AU
 Credit: Styled after SORA/Lucky Star

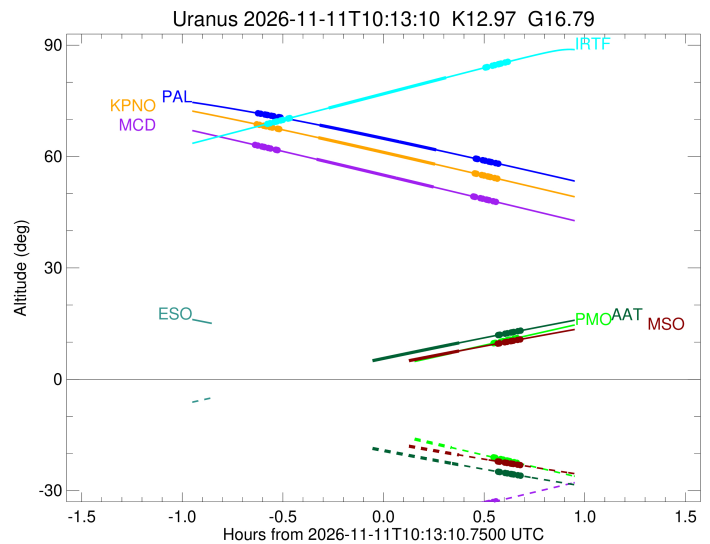
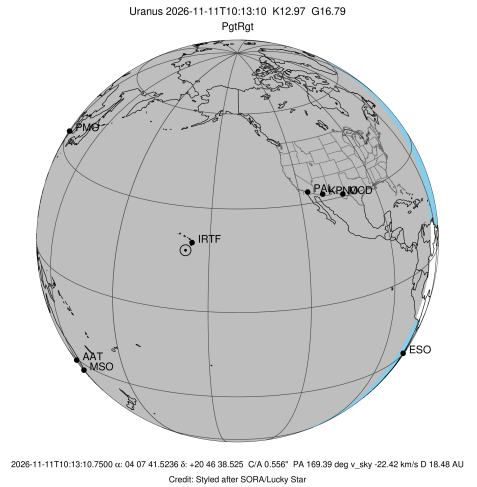


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1	+++++	+ +	+++++	NOV 11 09:35 - NOV 11 10:47	PieRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8		+	+++++	NOV 11 10:33 - NOV 11 10:52	PneRne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	NOV 11 09:35 - NOV 11 10:46	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	NOV 11 09:34 - NOV 11 10:46	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++	+ +	+++++	NOV 11 09:38 - NOV 11 10:50	PieRie
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8					PnnRnn
ESO	European Southern Obs	-29.3	289.3					PnnRnn
AAT	Siding Spring (AAT)	-31.3	149.1		+	+++++	NOV 11 10:35 - NOV 11 10:53	PneRne
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0		+	+++++	NOV 11 10:35 - NOV 11 10:53	PneRne

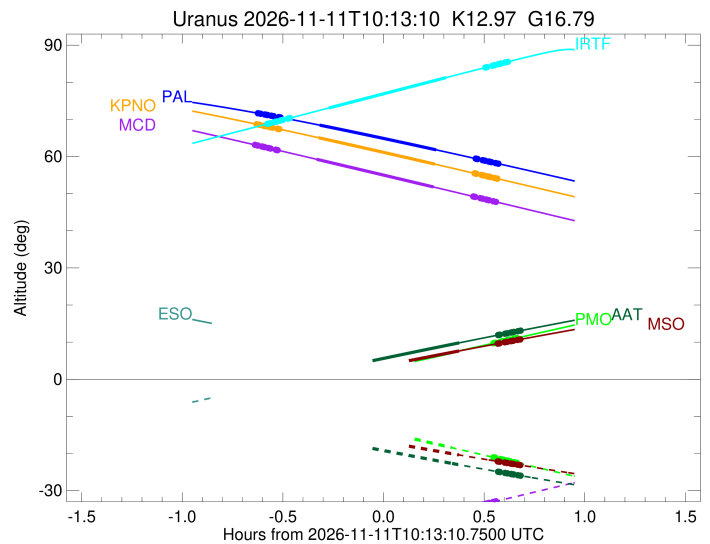
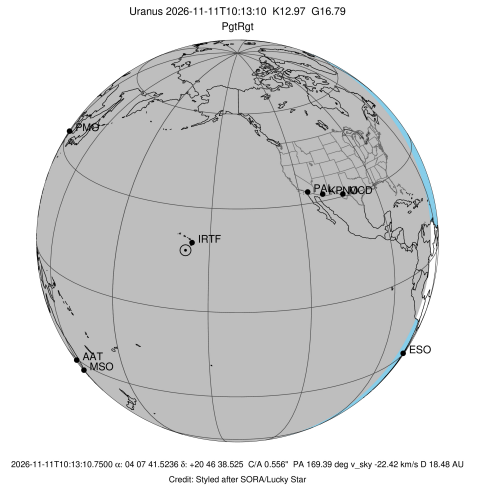


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-11T10:11:22.460
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 52026111383950336
 2Mass ID (if available) : 04074151+2046385
 ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s
 RUWE (>1.4 is poor) : 1.81
 K magnitude : 12.971
 G magnitude : 16.787
 RP magnitude : 15.541
 BP magnitude : 18.162
 DUPflag : 0
 Distance (au) : 18.477
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.77
 Sun-Moon sep (deg) : 169.79
 B (ring opening deg) : 74.34
 PA of pole (deg) : -71.57
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.635
 C/A sky separation (km) : 8507.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-11-11T09:35:41.066		71.67	-58.03	51252.78	-23.10		
lambda	I	2026-11-11T09:36:34.096		71.52	-57.85	50026.71	-23.11		
delta	I	2026-11-11T09:37:48.835		71.32	-57.61	48300.35	-23.09		
gamma	I	2026-11-11T09:38:17.890		71.23	-57.52	47629.75	-23.07		
eta	I	2026-11-11T09:38:37.553		71.18	-57.45	47176.12	-23.07		
beta	I	2026-11-11T09:39:44.061		70.99	-57.24	45641.97	-23.04		
alpha	I	2026-11-11T09:40:25.773		70.88	-57.10	44685.53	-23.02		
4	I	2026-11-11T09:41:57.300		70.62	-56.80	42575.70	-22.97		
5	I	2026-11-11T09:42:15.450		70.56	-56.74	42166.96	-22.96		
6	I	2026-11-11T09:42:30.877		70.52	-56.69	41813.17	-22.96		
Uranus	I	2026-11-11T09:54:09.241		68.46	-54.38	25029.43		15.46	16.15
Uranus	E	2026-11-11T10:28:49.527		61.81	-47.34	25317.95		-10.27	-10.75
6	E	2026-11-11T10:40:41.263		59.44	-44.90	41873.39	22.93		
5	E	2026-11-11T10:40:59.280		59.38	-44.83	42280.25	22.93		
4	E	2026-11-11T10:41:11.223		59.34	-44.79	42549.16	22.94		
alpha	E	2026-11-11T10:42:46.629		59.01	-44.46	44746.07	22.99		
beta	E	2026-11-11T10:43:27.438		58.88	-44.32	45681.17	23.01		
eta	E	2026-11-11T10:44:32.342		58.66	-44.10	47176.12	23.03		
gamma	E	2026-11-11T10:44:51.803		58.59	-44.03	47624.44	23.04		
delta	E	2026-11-11T10:45:21.132		58.49	-43.93	48300.35	23.05		
lambda	E	2026-11-11T10:46:35.985		58.24	-43.67	50026.71	23.08		
epsilon	E	2026-11-11T10:47:14.529		58.11	-43.54	50916.35	23.06		

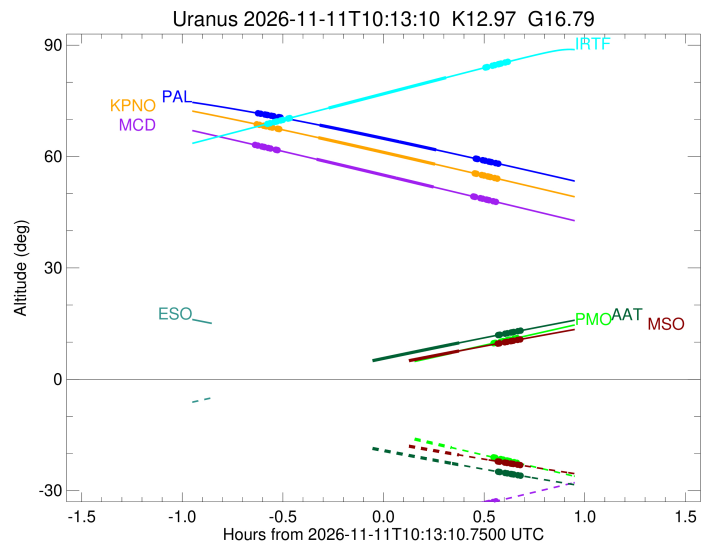
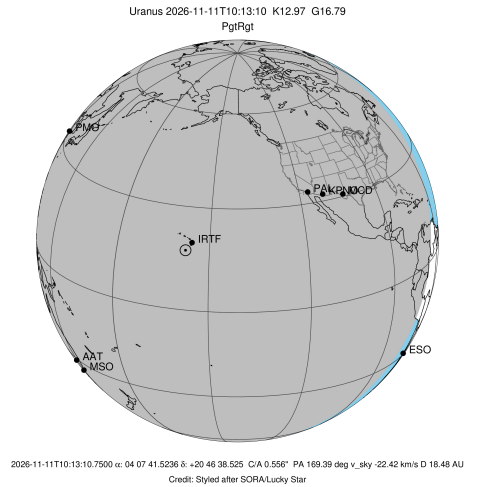
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-11T10:16:40.390
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 52026111383950336
 2Mass ID (if available) : 04074151+2046385
 ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s
 RUWE (>1.4 is poor) : 1.81
 K magnitude : 12.971
 G magnitude : 16.787
 RP magnitude : 15.541
 BP magnitude : 18.162
 DUPflag : 0
 Distance (au) : 18.477
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.77
 Sun-Moon sep (deg) : 170.25
 B (ring opening deg) : 74.34
 PA of pole (deg) : -71.57
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.877
 C/A sky separation (km) : 11756.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-11-11T09:40:47.508	-3.08x	-7.50	51225.19	-22.26			
lambda	I	2026-11-11T09:41:41.279	-2.91x	-7.69	50026.71	-22.27			
delta	I	2026-11-11T09:42:58.865	-2.67x	-7.95	48300.35	-22.23			
gamma	I	2026-11-11T09:43:29.036	-2.57x	-8.05	47630.04	-22.21			
eta	I	2026-11-11T09:43:49.482	-2.51x	-8.12	47176.12	-22.19			
beta	I	2026-11-11T09:44:58.618	-2.29x	-8.36	45642.49	-22.14			
alpha	I	2026-11-11T09:45:42.078	-2.15x	-8.51	44685.01	-22.11			
4	I	2026-11-11T09:47:17.622	-1.85x	-8.83	42571.91	-22.02			
5	I	2026-11-11T09:47:36.554	-1.79x	-8.90	42163.63	-22.00			
6	I	2026-11-11T09:47:52.288	-1.74x	-8.95	41816.23	-22.00			
Uranus	I	2026-11-11T10:00:10.970	0.64x	-11.49	25016.25			15.66	16.36
Uranus	E	2026-11-11T10:33:27.328	7.19	-18.41	25388.11			-8.61	-9.02
6	E	2026-11-11T10:45:59.958	9.71	-21.04	41874.96	22.11			
5	E	2026-11-11T10:46:18.372	9.77	-21.10	42275.20	22.11			
4	E	2026-11-11T10:46:30.824	9.82	-21.15	42546.30	22.12			
alpha	E	2026-11-11T10:48:09.695	10.15	-21.49	44744.62	22.22			
beta	E	2026-11-11T10:48:51.941	10.29	-21.64	45681.02	22.26			
eta	E	2026-11-11T10:49:58.994	10.52	-21.88	47176.12	22.31			
gamma	E	2026-11-11T10:50:19.096	10.58	-21.95	47624.77	22.33			
delta	E	2026-11-11T10:50:49.342	10.69	-22.05	48300.35	22.35			
lambda	E	2026-11-11T10:52:06.502	10.95	-22.32	50026.71	22.40			
epsilon	E	2026-11-11T10:52:45.334	11.08	-22.46	50896.96	22.39			

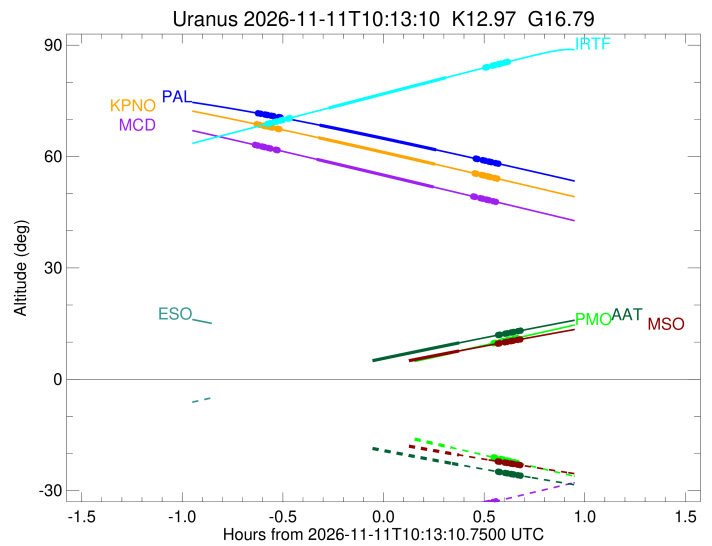
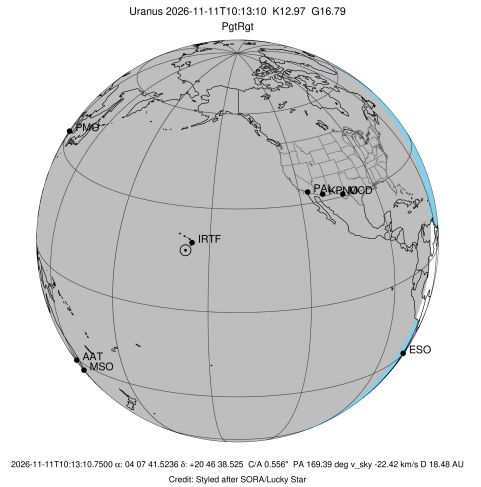
```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch              : 2026-11-11T10:11:02.120
Event type             : PgtRgt
: Uranus occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code         : KPNO
Location               : Kitt Peak Natl Obs
Latitude (deg)        : 31.96333
E. Longitude (deg)    : 248.40000
Altitude (km)         : 2.120
Gaia source ID        : 52026111383950336
2Mass ID (if available) : 04074151+2046385
ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s
RUWE (>1.4 is poor)  : 1.81
K magnitude           : 12.971
G magnitude           : 16.787
RP magnitude          : 15.541
BP magnitude          : 18.162
DUPflag              : 0
Distance (au)         : 18.477
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : -22.42
Sun-Target sep (deg)  : 164.77
Sun-Moon sep (deg)    : 169.74
B (ring opening deg)  : 74.34
PA of pole (deg)      : -71.57
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.623
C/A sky separation (km) : 8353.1
NAIF SPICE kernels    : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itrff93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-11-11T09:35:18.794		68.70	-54.32	51254.23	-23.11		
lambda	I	2026-11-11T09:36:11.866		68.53	-54.14	50026.71	-23.12		
delta	I	2026-11-11T09:37:26.573		68.29	-53.88	48300.35	-23.10		
gamma	I	2026-11-11T09:37:55.617		68.20	-53.78	47629.73	-23.08		
eta	I	2026-11-11T09:38:15.270		68.14	-53.71	47176.12	-23.08		
beta	I	2026-11-11T09:39:21.747		67.92	-53.49	45641.95	-23.05		
alpha	I	2026-11-11T09:40:03.436		67.79	-53.34	44685.56	-23.03		
4	I	2026-11-11T09:41:34.904		67.49	-53.03	42575.89	-22.98		
5	I	2026-11-11T09:41:53.043		67.43	-52.97	42167.14	-22.97		
6	I	2026-11-11T09:42:08.479		67.38	-52.91	41813.02	-22.98		
Uranus	I	2026-11-11T09:53:46.113		65.08	-50.50	25030.63		15.44	16.13
Uranus	E	2026-11-11T10:28:31.876		57.95	-43.20	25314.81		-10.34	-10.82
6	E	2026-11-11T10:40:22.932		55.46	-40.69	41873.32	22.94		
5	E	2026-11-11T10:40:40.957		55.40	-40.63	42280.45	22.94		
4	E	2026-11-11T10:40:52.895		55.36	-40.59	42549.28	22.94		
alpha	E	2026-11-11T10:42:28.284		55.02	-40.25	44746.13	22.99		
beta	E	2026-11-11T10:43:09.088		54.88	-40.10	45681.17	23.01		
eta	E	2026-11-11T10:44:13.989		54.65	-39.87	47176.12	23.03		
gamma	E	2026-11-11T10:44:33.449		54.58	-39.81	47624.43	23.04		
delta	E	2026-11-11T10:45:02.779		54.48	-39.70	48300.35	23.05		
lambda	E	2026-11-11T10:46:17.635		54.22	-39.44	50026.71	23.07		
epsilon	E	2026-11-11T10:46:56.217		54.08	-39.30	50917.18	23.06		

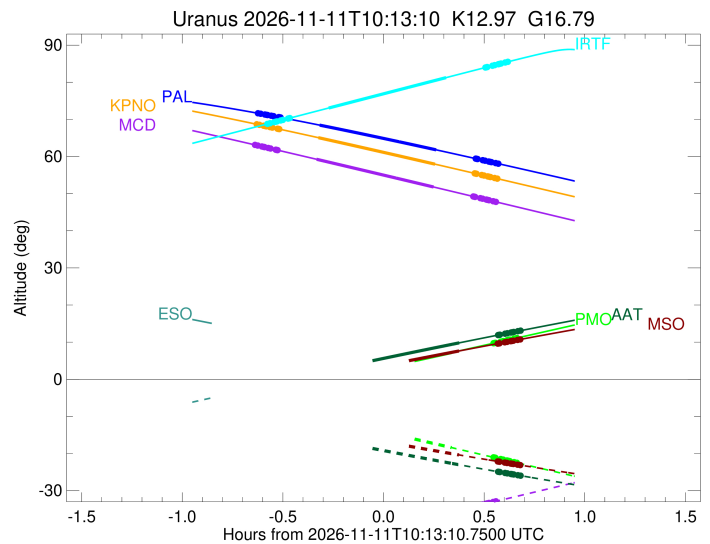
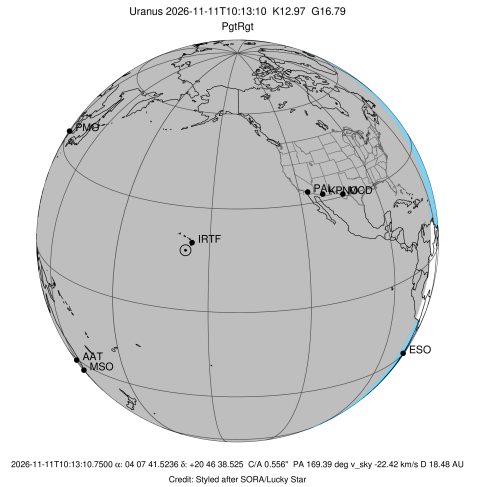
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-11T10:10:33.930
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 52026111383950336
 2Mass ID (if available) : 04074151+2046385
 ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s
 RUWE (>1.4 is poor) : 1.81
 K magnitude : 12.971
 G magnitude : 16.787
 RP magnitude : 15.541
 BP magnitude : 18.162
 DUPflag : 0
 Distance (au) : 18.477
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.77
 Sun-Moon sep (deg) : 169.67
 B (ring opening deg) : 74.34
 PA of pole (deg) : -71.57
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.615
 C/A sky separation (km) : 8239.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-11-11T09:34:47.962		63.15	-48.32	51255.46	-23.10		
lambda	I	2026-11-11T09:35:41.098		62.96	-48.13	50026.71	-23.12		
delta	I	2026-11-11T09:36:55.820		62.70	-47.87	48300.35	-23.09		
gamma	I	2026-11-11T09:37:24.870		62.60	-47.76	47629.72	-23.08		
eta	I	2026-11-11T09:37:44.526		62.53	-47.69	47176.12	-23.07		
beta	I	2026-11-11T09:38:51.015		62.30	-47.46	45641.92	-23.05		
alpha	I	2026-11-11T09:39:32.707		62.15	-47.31	44685.59	-23.03		
4	I	2026-11-11T09:41:04.180		61.83	-46.98	42576.05	-22.98		
5	I	2026-11-11T09:41:22.320		61.77	-46.92	42167.30	-22.97		
6	I	2026-11-11T09:41:37.773		61.72	-46.86	41812.89	-22.98		
Uranus	I	2026-11-11T09:53:15.266		59.26	-44.37	25031.64		15.42	16.12
Uranus	E	2026-11-11T10:28:06.345		51.80	-36.88	25312.74		-10.38	-10.86
6	E	2026-11-11T10:39:57.451		49.24	-34.33	41873.27	22.92		
5	E	2026-11-11T10:40:15.495		49.18	-34.26	42280.58	22.92		
4	E	2026-11-11T10:40:27.439		49.13	-34.22	42549.36	22.93		
alpha	E	2026-11-11T10:42:02.890		48.79	-33.88	44746.16	22.97		
beta	E	2026-11-11T10:42:43.722		48.64	-33.73	45681.18	22.99		
eta	E	2026-11-11T10:43:48.671		48.41	-33.50	47176.12	23.02		
gamma	E	2026-11-11T10:44:08.147		48.34	-33.43	47624.42	23.02		
delta	E	2026-11-11T10:44:37.501		48.23	-33.32	48300.35	23.03		
lambda	E	2026-11-11T10:45:52.418		47.96	-33.06	50026.71	23.05		
epsilon	E	2026-11-11T10:46:31.054		47.83	-32.92	50917.65	23.04		

```

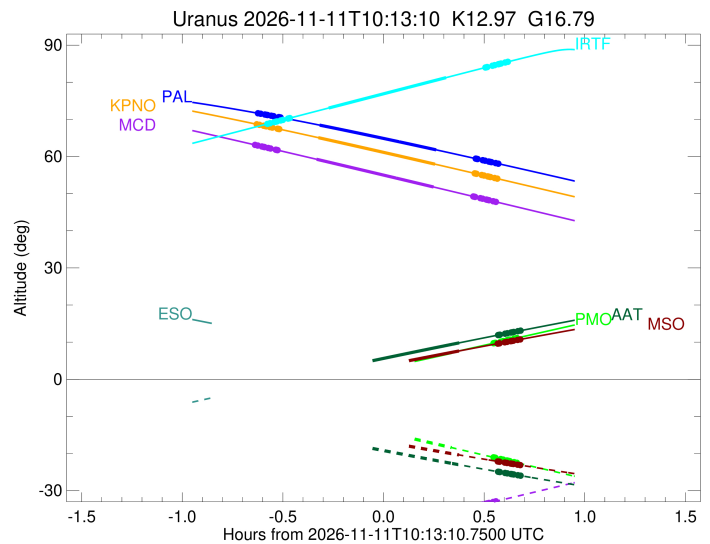
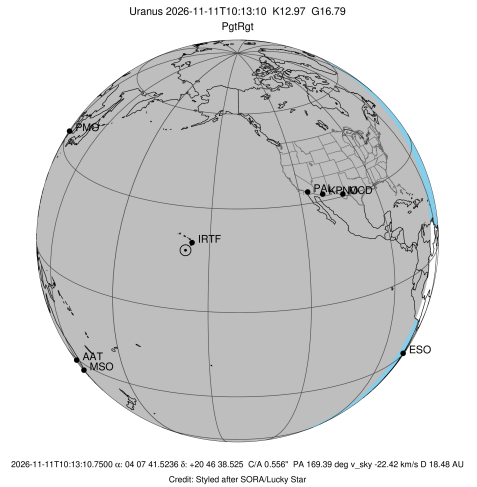
target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2026-11-11T10:14:15.170
Event type          : PgtRgt
: Uranus occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code       : IRTF
Location            : Mauna Kea/IRTF
Latitude (deg)      : 19.82622
E. Longitude (deg)  : 204.52800
Altitude (km)       : 4.168
Gaia source ID      : 52026111383950336
2Mass ID (if available) : 04074151+2046385
ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s
RUWE (>1.4 is poor) : 1.81
K magnitude          : 12.971
G magnitude          : 16.787
RP magnitude         : 15.541
BP magnitude         : 18.162
DUPflag             : 0
Distance (au)       : 18.477
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -22.42
Sun-Target sep (deg) : 164.77
Sun-Moon sep (deg)  : 170.33
B (ring opening deg) : 74.34
PA of pole (deg)    : -71.57
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.567
C/A sky separation (km) : 7594.0
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-11-11T09:38:29.221		68.77	-83.13	51258.24	-23.18		
lambda	I	2026-11-11T09:39:22.293		68.98	-83.33	50026.71	-23.20		
delta	I	2026-11-11T09:40:36.741		69.27	-83.60	48300.35	-23.18		
gamma	I	2026-11-11T09:41:05.680		69.38	-83.71	47629.69	-23.17		
eta	I	2026-11-11T09:41:25.258		69.46	-83.78	47176.12	-23.16		
beta	I	2026-11-11T09:42:31.478		69.72	-84.03	45641.87	-23.14		
alpha	I	2026-11-11T09:43:12.986		69.88	-84.18	44685.66	-23.13		
4	I	2026-11-11T09:44:44.024		70.23	-84.51	42576.50	-23.09		
5	I	2026-11-11T09:45:02.076		70.30	-84.57	42167.73	-23.08		
6	I	2026-11-11T09:45:17.495		70.36	-84.63	41812.54	-23.09		
Uranus	I	2026-11-11T09:56:49.998		73.07	-86.90	25035.63		15.36	16.05
Uranus	E	2026-11-11T10:31:51.715		81.26	-83.47	25294.96		-10.76	-11.26
6	E	2026-11-11T10:43:34.768		83.98	-80.81	41872.78	23.13		
5	E	2026-11-11T10:43:52.729		84.05	-80.74	42282.00	23.12		
4	E	2026-11-11T10:44:04.554		84.10	-80.69	42550.21	23.13		
alpha	E	2026-11-11T10:45:39.167		84.46	-80.33	44746.56	23.17		
beta	E	2026-11-11T10:46:19.642		84.62	-80.17	45681.20	23.19		
eta	E	2026-11-11T10:47:24.047		84.86	-79.93	47176.12	23.21		
gamma	E	2026-11-11T10:47:43.357		84.94	-79.85	47624.32	23.21		
delta	E	2026-11-11T10:48:12.473		85.05	-79.74	48300.35	23.22		
lambda	E	2026-11-11T10:49:26.777		85.33	-79.45	50026.71	23.24		
epsilon	E	2026-11-11T10:50:05.370		85.48	-79.31	50923.99	23.23		

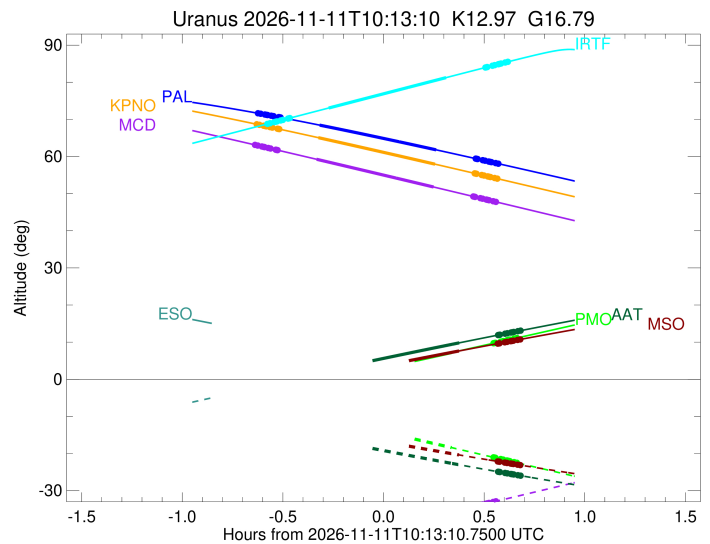
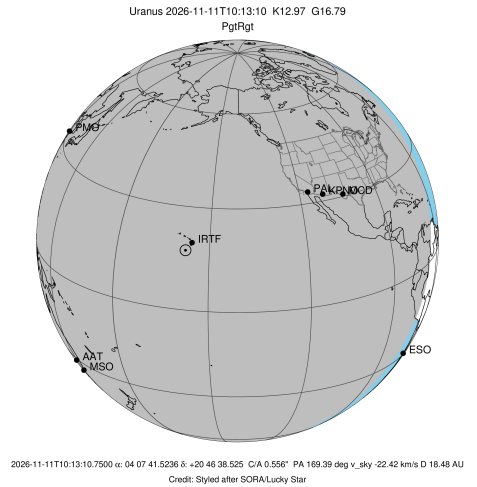
```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2026-11-11T10:17:25.370
Event type           : PgtRgt
: Ring occs: geocentric, topocentric
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)   : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 52026111383950336
2Mass ID (if available) : 04074151+2046385
ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s
RUWE (>1.4 is poor) : 1.81
K magnitude           : 12.971
G magnitude           : 16.787
RP magnitude          : 15.541
BP magnitude          : 18.162
DUPflag              : 0
Distance (au)        : 18.477
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -22.42
Sun-Target sep (deg) : 164.77
Sun-Moon sep (deg)   : 170.93
B (ring opening deg) : 74.34
PA of pole (deg)     : -71.57
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.343
C/A sky separation (km) : 4592.3
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-11-11T09:40:48.929	-0.61x	-13.39	51280.84	-23.03			
lambda	I	2026-11-11T09:41:43.359	-0.43x	-13.56	50026.71	-23.04			
delta	I	2026-11-11T09:42:58.298	-0.19x	-13.79	48300.35	-23.03			
gamma	I	2026-11-11T09:43:27.427	-0.09x	-13.88	47629.43	-23.03			
eta	I	2026-11-11T09:43:47.110	-0.03x	-13.94	47176.12	-23.03			
beta	I	2026-11-11T09:44:53.710	0.19x	-14.14	45641.54	-23.02			
alpha	I	2026-11-11T09:45:35.382	0.32x	-14.27	44686.30	-23.02			
4	I	2026-11-11T09:47:06.684	0.62x	-14.55	42579.65	-23.00			
5	I	2026-11-11T09:47:24.777	0.68x	-14.61	42171.00	-23.01			
6	I	2026-11-11T09:47:40.552	0.73x	-14.65	41810.13	-23.01			
Uranus	I	2026-11-11T09:59:11.259	2.95x	-16.74	25067.00			14.87	15.54
Uranus	E	2026-11-11T10:35:45.215	9.81	-23.03	25228.20			-12.09	-12.64
6	E	2026-11-11T10:47:21.404	11.91	-24.91	41870.92	23.12			
5	E	2026-11-11T10:47:39.624	11.96	-24.96	42286.72	23.11			
4	E	2026-11-11T10:47:51.411	12.00	-24.99	42553.24	23.11			
alpha	E	2026-11-11T10:49:26.061	12.28	-25.24	44747.84	23.13			
beta	E	2026-11-11T10:50:06.565	12.40	-25.35	45681.23	23.14			
eta	E	2026-11-11T10:51:11.114	12.59	-25.52	47176.12	23.15			
gamma	E	2026-11-11T10:51:30.460	12.65	-25.57	47624.00	23.15			
delta	E	2026-11-11T10:51:59.671	12.73	-25.64	48300.35	23.16			
lambda	E	2026-11-11T10:53:14.207	12.95	-25.84	50026.71	23.17			
epsilon	E	2026-11-11T10:53:53.857	13.07	-25.94	50945.34	23.16			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-11T10:17:17.840
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 52026111383950336
 2Mass ID (if available) : 04074151+2046385
 ICRS Star Coord at Epoch: 04h 07m 41.52363s +20:46:38.52460s
 RUWE (>1.4 is poor) : 1.81
 K magnitude : 12.971
 G magnitude : 16.787
 RP magnitude : 15.541
 BP magnitude : 18.162
 DUPflag : 0
 Distance (au) : 18.477
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.77
 Sun-Moon sep (deg) : 170.93
 B (ring opening deg) : 74.34
 PA of pole (deg) : -71.57
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.317
 C/A sky separation (km) : 4241.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-11-11T09:40:38.980	-2.33x	-11.27	51283.62	-23.04			
lambda	I	2026-11-11T09:41:33.506	-2.16x	-11.43	50026.71	-23.05			
delta	I	2026-11-11T09:42:48.408	-1.93x	-11.64	48300.35	-23.05			
gamma	I	2026-11-11T09:43:17.523	-1.84x	-11.73	47629.39	-23.04			
eta	I	2026-11-11T09:43:37.193	-1.78x	-11.79	47176.12	-23.04			
beta	I	2026-11-11T09:44:43.758	-1.57x	-11.98	45641.51	-23.04			
alpha	I	2026-11-11T09:45:25.398	-1.44x	-12.10	44686.39	-23.03			
4	I	2026-11-11T09:46:56.626	-1.16x	-12.36	42580.04	-23.02			
5	I	2026-11-11T09:47:14.702	-1.10x	-12.42	42171.42	-23.02			
6	I	2026-11-11T09:47:30.503	-1.05x	-12.46	41809.84	-23.03			
Uranus	I	2026-11-11T09:59:00.466	1.07x	-14.43	25071.64			14.79	15.46
Uranus	E	2026-11-11T10:35:40.451	7.62	-20.38	25220.96			-12.22	-12.78
6	E	2026-11-11T10:47:15.595	9.61	-22.14	41870.70	23.13			
5	E	2026-11-11T10:47:33.831	9.66	-22.18	42287.22	23.13			
4	E	2026-11-11T10:47:45.609	9.69	-22.21	42553.58	23.12			
alpha	E	2026-11-11T10:49:20.206	9.96	-22.45	44747.97	23.14			
beta	E	2026-11-11T10:50:00.689	10.07	-22.55	45681.23	23.15			
eta	E	2026-11-11T10:51:05.215	10.25	-22.70	47176.12	23.16			
gamma	E	2026-11-11T10:51:24.554	10.31	-22.75	47623.97	23.16			
delta	E	2026-11-11T10:51:53.757	10.39	-22.82	48300.35	23.16			
lambda	E	2026-11-11T10:53:08.273	10.60	-23.01	50026.71	23.17			
epsilon	E	2026-11-11T10:53:48.014	10.71	-23.10	50947.68	23.16			